

REMARKS

Claims 1-54 were pending in the present application. Claims 1, 3-5, 10, 12, 17, 21, 23, 24, 28-29, 33, 35, 37, 41, 43, and 44 have been amended. As a result of this amendment, claims 1-54 remain pending. Reexamination and reconsideration are requested in light of the accompanying amendment and remarks.

Applicants gratefully acknowledge the examiner's statement that claims 6-8, 11, 13, 15-19, 21, 23, 30-33, 36, 38-43, and 46 would be allowable if rewritten in independent form. However, this was not deemed necessary in view of the amendments and arguments presented herein.

Claims 3, 5, 21, 29, and 33 were amended to correct minor typographical errors. Claims 10 and 35 were amended to clarify the claims in view of previous amendments. These amendments were made for purposes of clarity and for no other purpose. They do not narrow the claims.

The rejection of claims 1-54 under 35 U.S.C. § 112, second paragraph as being indefinite has been overcome. Claims 1, 4, 12, 17, 23-24, 28, 37, 41, 43, and 44 have been amended to recite that the plasticizer/accelerator acts as both a plasticizer and an accelerator. Support for this amendment can be found in paragraph [0025]. These amendments have been made for purposes of clarity and for no other purpose.

The rejection of claims 1, 2, 4, 9, 12, 20, 22, 24-26, 28, 34, 49, 50, 53, and 54 under 35 U.S.C. § 102(e) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over Gordon (U.S. Patent No. 6,645,341) has been overcome. Gordon describes a two-component epoxy-based adhesive. The resin component comprises an epoxy resin, a polymer polyol, and fumed silica. The curing agent comprises a polyoxyalkyleneamine, an amine terminated butadiene-acrylonitrile polymer, tris (2,4,6-dimethylaminomethyl)phenol, polyamide resin, silane, and fumed silica. Abstract.

The examiner stated that Gordon teaches an internally flexibilized epoxy resin, citing col. 2, lines 40-43 and 59-64. However, these sections simply list various epoxy resins which can be used. None of the resins listed is an internally flexibilized epoxy resin.

Epoxy functional butadiene acrylonitrile copolymers fall into the class of reactive liquid polymers, which includes amine terminated butadiene acrylonitrile, carboxyl terminated butadiene acrylonitrile, and vinyl terminated butadiene acrylonitrile. See Exhibit A attached. U.S. Patent No. 5,268,452 discusses the use of reactive liquid polymers including epoxy terminated butadiene acrylonitrile, and carboxyl terminated butadiene acrylonitrile, and identified Hycar® as a trademark for reactive liquid polymers. Col. 4, lines 6-19, col. 6, line 3 to col. 7, line 27, and col. 26, line 49 to col. 27, line 27. The other articles, although dated after Gordon's filing date, show various Hycar® reactive liquid polymers. Hanse Chemie article - 3d paragraph; Emerald Performance Materials article - 3d paragraph; Press Release - Specialty Polymers; Nano-modified ambient temperature curing epoxy adhesives - p. 2, Reactive liquid rubbers in two part adhesives.

Reactive liquid polymers, such as amine terminated butadiene acrylonitrile or carboxyl terminated butadiene acrylonitrile, can be used as the flexibilizers for the hardener component of the present invention. See para. [0031].

However, epoxy functional butadiene acrylonitrile copolymers are not internally flexibilized epoxy resins. Internally flexibilized epoxy resins are a known class of materials. See Exhibit B attached. U.S. Patent No. 5,959,061 discussed the use of an internally flexibilized epoxy resin. Col. 9, lines 47-57, and col. 10, lines 37-40. The Product Information Sheets for D.E.R. 732 from Dow Chemical Co. (Introduction), Epoxy 300 Flex from Arizona Polymer Flooring (Chemical Composition), and RES-CRETE RC 806 from Pacific Polymers (Product Description), although dated after Gordon's filing date, also show the usage of the terms flexibilized epoxy resin and internally flexibilized epoxy resin.

Gordon's epoxy functional butadiene acrylonitrile copolymer is not an internally flexibilized epoxy resin. Therefore, Gordon does not teach or suggest the use of both an epoxy resin and an internally flexibilized epoxy resin.

The examiner admits that Gordon does not disclose that the cured adhesive has a tensile elongation at room temperature of greater than 30%. The examiner relies on inherency based on Gordon teaching all of the material limitations of the claims. However, Gordon does not teach the use of a flexibilized epoxy resin, as discussed above. Therefore, the tensile elongation at

room temperature of greater than 30% is not inherent in Gordon's adhesive.

With respect to claims 2, 20, 22, and 25, the examiner admits that Gordon does not disclose an initial cure time of less than 3 hours or about 1.5-2 hours. The examiner relies on inherency based on Gordon satisfying the chemical/material limitations. However, as discussed above, Gordon does not teach the use of a flexibilized epoxy resin. Therefore, Gordon does not inherently have an initial cure time as claimed.

In addition, as to claims 20 and 22, the examiner relies on inherency for the limitations that the tensile elongation at room temperature is greater than 120% or greater than 80%. However, Gordon does not satisfy all the chemical/material limitations. Therefore, Gordon does not inherently meet the tensile elongation limitations of claims 20 and 22.

Therefore, claims 1, 2, 4, 9, 12, 20, 22, 24-26, 28, 34, 49, 50, 53, and 54 are not anticipated by, and they would not have been obvious to one of ordinary skill in the art at the time the invention was made, over Gordon.

The rejection of claims 3, 10, 35, 44, and 45 under 35 U.S.C. § 103(a) as being unpatentable over Gordon has been overcome.

With respect to claims 3 and 44, the claims have been amended to clarify that the plasticizer/accelerator acts as both a plasticizer and an accelerator. The examiner identified Gordon's toughener as a plasticizer/accelerator. The toughener in Gordon is a polyol or an acrylate. Neither of these is a plasticizer/accelerator because neither acts as both a plasticizer and an accelerator.

Therefore, claims 3, 10, 35, 44, and 45 would not have been obvious to one of ordinary skill in the art at the time the invention was made over Gordon.

The rejection of claims 47, 48, 51, and 52 under 35 U.S.C. § 103(a) as obvious over Gordon in view of Cunliffe (U.S. Patent No. 4,107,142) has been overcome. Cunliffe was cited as teaching a butylated bisphenol A epoxy resin. However, Cunliffe does not remedy the deficiencies of Gordon. Therefore, claims 47, 48, 51, and 52 would not have been obvious to one of ordinary skill in the art at the time the invention was made over Gordon in view of Cunliffe.

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The rejection of claims 5, 14, and 29 under 35 U.S.C. § 103(a) as obvious over Gordon in view of Hermansen (U.S. Patent No. 6,723,803) has been overcome. Hermansen was cited as teaching the use of fillers not exceeding 50% of the composition volume for flexible epoxy-based adhesive compositions. However, Hermansen does not remedy the deficiencies of Gordon. Therefore, claims 5, 14, and 29 would not have been obvious to one of ordinary skill in the art at the time the invention was made over Gordon in view of Hermansen.

CONCLUSION

Applicant respectfully submits that, in view of the above amendment and remarks, the application is now in condition for allowance. Applicant respectfully requests that claims 1-54 be passed to allowance.

If the Examiner has any questions or comments regarding the present application, he is invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,
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